

contents of cancelled claim 2 have been incorporated into claim 1. Claim 1 has been further amended in part to overcome a rejection under 35 U.S.C. § 112 and to recite that in component (B), the alkyl has at least 8 carbon atoms. Support for this latter amendment to claim 1 can be found, e.g., in the specification at page 15, lines 17 and 20, and in claim 12.

Claim 3 has been amended to be consistent with the amendment to claim 1.

New claim 15 depends upon claim 3 and recites that the alkyl(meth) acrylate of (B1) and (B2) is 2-ethylhexyl acrylate. Support for this recitation can be found in the specification at, for example, page 8, lines 18-19, and Examples 3 and 5.

In the Office Action, claims 1-5, 12 and 13 are rejected under 35 U.S.C. § 112, second paragraph, and under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,554,320 to Reimann et al. ("Reimann").

In view of the amendments and remarks made herein, Applicants respectfully request reconsideration and withdrawal of the rejections set forth in the Office Action.

**I. Rejection Under 35 U.S.C. § 112**

Claims 1-5, 12 and 13 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

According to the Office Action, the Markush group recited in claim 1 for component (M) is improper. Claim 1 has been amended to use proper Markush language.

The Office Action further states that the metes and bounds of the term "functional group" in claim 1 are unclear in that the term reads on the ester group of the acrylate comonomer of component (B1) such that component (B1) embraces copolymers which only contain the recited ethylene and (meth)acrylate comonomers. Claim 1 has been amended to state that copolymer (B1) further carries a functional group selected from the group consisting of carboxylic acids, carboxylic acid derivatives other than the ester functional group of the acrylate portion of the copolymer (B1), acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides.

Furthermore, the Office Action states that the characterization of component (B2) in claim 1 as a copolymer which “does not carry a functional group” is indefinite in that the copolymer does contain an ester functional group. Claim 1 has been amended to recite that the copolymer does not carry a functional group selected from the group consisting of carboxylic acids, carboxylic acid derivatives other than the ester functional group of the acrylate portion of the copolymer (B2), acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides.

In addition, the Office Action states that the metes and bounds of the term “impact modifier with functional group” in claim 1 are said to be indeterminate in scope in that the component reads on either of the two antecedently recited ethylene copolymers. Claim 1 has been amended to state that the impact modifier carries a functional group selected from the group consisting of carboxylic acids and their derivatives, acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides.

In view of the foregoing amendments to claim 1, Applicants respectfully request withdrawal of the § 112 rejection.

## **II. Rejection Under 35 U.S.C. § 103(a)**

Claims 1-5, 12 and 13 are rejected under § 103(a) as being unpatentable over Reimann.

Applicants respectfully submit that Reimann would not have rendered instant claims 1, 3-5, 12, 13 and 15 obvious.

Claim 1 has been amended to recite that in component (B), the alkyl has at least 8 carbon atoms.

Reimann does not teach or suggest component (B) of Applicants’ claimed invention in that the reference does not expressly exemplify an alkyl acrylate having at least 8 carbon atoms. Applicants submit that the Examples set forth in the instant specification show that the number of carbon atoms in the alkyl group does have a significant effect on the properties of a thermoplastic composition. Specific reference is made to Examples 2-5.

The procedures and materials in Examples 2 and 3 were identical except for the terpolymers used. In Example 2, the terpolymer was an ethylene/*ethyl* acrylate/maleic anhydride (referred to as "Terpol 1") of 69.15%/29.5%/1.35% by weight composition respectively and an MFI (190°C/2.16 kg) of 6. The terpolymer used in Example 3 was an ethylene/2-*ethylhexyl* acrylate/maleic anhydride (referred to "Terpol 3") of 69%/30%/1% by weight composition respectively and an MFI (190°C/2.16 kg) of 5.5. Thus, the alkyl used in Example 2 contained two carbon atoms and the alkyl used in Example 3 contained eight carbon atoms. The components in Examples 2 and 3 were melt blended using a single-screw BUSS® extruder.

The procedures and materials in Examples 4 and 5 were identical except for the terpolymers used. Example 4 used Terpol 1 (described above), i.e., an ethylene/*ethyl* acrylate/maleic anhydride. Example 5 used an ethylene/2-*ethylhexyl* acrylate/maleic anhydride (referred to "Terpol 4") of 67%/32%/1% by weight composition respectively and an MFI (190°C/2.16 kg) of 6. The components in Examples 4 and 5 were melt blended using a twin-screw extruder.

The Notched Charpy impact strength at +23°C and at -40°C of the compositions used in Examples 2-5 was measured in the manner discussed in the specification. The results are shown in Table 1 on page 17 of the specification and in the Table below.

**Table**

**Examples 2-5: Notched Charpy Impact  
Strength at +23°C and at -40°C**

Example No.	Notched Charpy Impact Strength at +23°C	Notched Charpy Impact Strength at -40°C
2	40	11
3	112	16.5
4	34	11
5	43	17

As can be seen from the Table above, the Example 3 composition, which used the terpolymer having an alkyl group of eight carbon atoms, had significantly higher impact strength at +23°C and at -40°C (112 and 16.5, respectively) than did the composition of Example 2 (40 and 11, respectively), which used the terpolymer having an alkyl group of two carbon atoms.

Likewise, the Example 5 composition, which used the terpolymer having an alkyl group of eight carbon atoms, had significantly higher impact strength at +23°C and at -40°C (43 and 17, respectively) than did the composition of Example 4 (34 and 11, respectively), which used the terpolymer having an alkyl group of two carbon atoms.

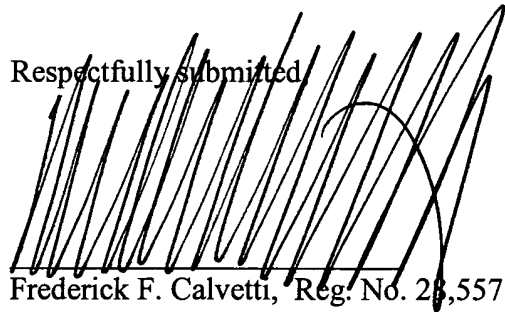
Applicants respectfully submit that the results shown in Table 1 in the specification and in the Table above are unexpected in view of Reimann because the reference does not teach or suggest that the number of carbon atoms in the alkyl group has a significant effect on the impact strength of the composition.

Applicants submit that, for at least this reason, instant claims 1, 3-5, 12, 13 and 15 would not have been obvious over Reimann.

### **III. Conclusion**

In view of the foregoing amendments and remarks, Applicants respectfully request that the rejections under § 112 and § 103(a) be withdrawn and that claims 1, 3-5, 12, 13 and 15 be allowed.

Respectfully submitted,



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**MARKED-UP PREVIOUS VERSION OF AMENDED CLAIMS**

1. (Twice Amended) Thermoplastic compositions comprising:

- 40 to 97 parts of a thermoplastic polymer (M) forming a matrix, the thermoplastic polymer (M) being selected from the group consisting of polyamides, polyamide block copolymers, fluoro polymers, polycarbonate, styrene resins, PMMA, thermoplastic polyurethanes (TPU), copolymers containing polyester blocks and polyether blocks, polycarbonate-polyester alloys, polyketones, PVC and ethylene-vinyl alcohol copolymers (EVOH),

- 60 to 3 parts of (B) comprising:

either an ethylene-alkyl (meth)acrylate copolymer (B1), the alkyl having at least [5] 8 carbon atoms, which copolymer (B1) further carries a functional group selected from the group consisting of carboxylic acids, carboxylic acid derivatives other than the ester functional group of the acrylate portion of the copolymer (B1), acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides,

or a blend of an ethylene-alkyl (meth)acrylate copolymer (B2), the alkyl having at least [5] 8 carbon atoms, which copolymer (B2) does not carry a functional group selected from the group consisting of carboxylic acids, carboxylic acid derivatives other than the ester functional group of the acrylate portion of the copolymer (B2), acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides, and of an impact modifier which carries a functional group selected from the group consisting of carboxylic acids and their derivatives, acid chlorides, isocyanates, oxazolines, epoxides, amines and hydroxides.

3. (Twice Amended) Compositions according to Claim 1, wherein the alkyl of the alkyl(meth)acrylate of (B1) and (B2) has from [5] 8 to 20 carbon atoms.